

Claims

- Sub 7
1. Device for temperature measurement comprising
- a) a detector (1) for receiving heat radiation (3) emanating from a measurement spot (2a) on an object of measurement (2),
  - b) an optical system (4) for imaging the heat radiation emanating from the measurement spot onto the detector (1)
  - c) and a sighting arrangement (5) for identifying the position and size of the measurement spot (2a) on the object of measurement by means of visible light (6)'
- characterised in that
- d) the sighting arrangement (5) has a diffractive optical system (~~holographic element 5b~~) to produce a light intensity distribution.
2. Device as claimed in Claim 1, characterised in that the sighting arrangement (5) also has at least one additional refracting and/or reflecting optical element (5c, 5'c).
3. Device as claimed in Claim 1, characterised in that the diffractive optical system is formed by a holographic element (5b).
4. Device as claimed in Claim 1, characterised by such a design of the diffractive optical system that the light intensity distribution on the object of measurement (2) forms an annular marking (3a; 3b).
5. Device as claimed in Claim 4, characterised in that the

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Light intensity distribution is formed by at least two circular markings (3f, 3g, 3h) which are arranged concentrically with respect to one another.

6. Device as claimed in Claim 4 or 5, characterised in that the light intensity distribution also has a further marking (3c) which represents the centre of the measurement spot.

7. Device as claimed in Claim 1, characterised by such a design of the diffractive optical system that the light intensity distribution on the object of measurement (2) forms a cross-shaped marking (3d, 3e).

8. Device as claimed in Claim 5, characterised in that the annular concentric markings in each case identify a region of the measurement spot (2a) from which a certain percentage of the energy of the received heat radiation originates.

9. Device as claimed in Claim 5, characterised in that the optical element (5'c) has a focus plane, wherein one circular marking identifies the measurement spot (2a) lying between the optical element and the focus plane and the other marking identifies the measurement spot lying behind the focus plane - when viewed from the optical element.

10. Device as claimed in Claim 1, characterised in that the sighting arrangement has a light source (5a), particularly a laser, for irradiating the diffractive optical system (4).

11. Device as claimed in Claim 1, characterised in that a beam divider (4a, 4'a) which is transparent for the visible light and reflective for the heat radiation emanating from the object of measurement is disposed in the beam path of the sighting arrangement (5).

12. Device as claimed in Claim 2, characterised in that the

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Fig 5

Fig 11

~~Optical element is constructed as an annular lens (5'c) and the optical system (4) as an infrared lens (4'b), the annular lens being arranged around the infrared lens.~~

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*Exhibit*  
~~13. Device as claimed in Claim 1, characterised in that the beam divider (4a) is disposed between the optical element (5c) and the object of measurement (2).~~

*fig #*  
~~14. Device as claimed in Claim 2, characterised in that the beam divider (4'a) is disposed between the diffractive optical system (4) and the additional optical element (5'c).~~

*Add 13*

*add  
B4*

*Add  
D27*

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